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ABSTRACT

This paper provides a framework for analyzing teachers' content decisions and for determining the extent to which they are influenced by state/district policies. Examples of research based on this framework are presented in the area of elementary school mathematics. Content decisions are defined as decisions of how much time will be devoted to a subject, what topics will be taught, to whom they will be taught, and how well topics are to be learned. To understand more precisely the effect of external policies on teachers, a bottom-up approach is advocated. This approach starts with an analysis of what teachers do and treats external policies as but one of many factors influencing them. In one study, selected teachers from three districts were chosen for variation in centralization of curriculum policy. Selected findings from this study are presented, including, for example, the response of teachers to a new district textbook, district testing programs, and a district management-by-objectives system. These case studies indicate that external policies, even when weak, do influence teachers' content decisions. In effect, the teachers studied acted as political brokers, arbitrating between their own priorities and the implied priorities of external policies. (Author/JN)

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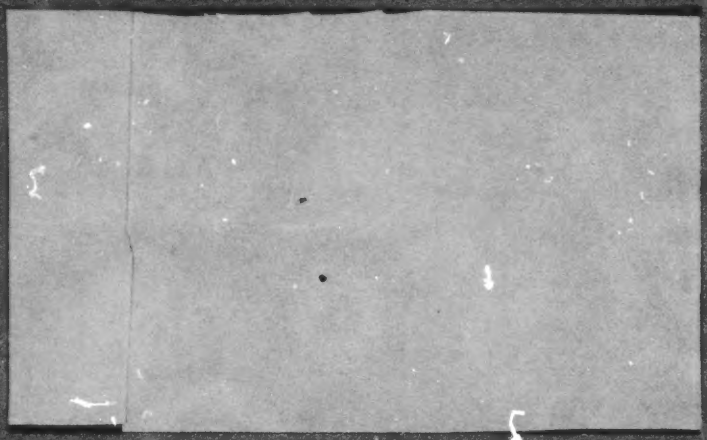

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Research Series No. 113

TEACHERS AS POLICY BROKERS IN THE CONTENT OF ELEMENTARY SCHOOL MATHEMATICS

John Schwille, Andrew Porter, Gabriella Belli, Robert Floden, Donald Freeman, Lucy Knappen, Therese Kuhs, and William Schmidt

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Abstract

This paper provides a framework for analyzing teachers' content decisions and for determining the extent to which they are influenced by state and district policies. Examples of research based on this framework are presented in the area of elementary school mathematics. Content decisions are defined as decisions of how much time will be devoted to a subject, what topics will be taught, to whom these topics will be taught, when and how long each topic will be taught, and how well topics are to be learned. In the past, content has received relatively little attention in empirical studies of what teachers do and how schools are governed. Yet, even in a highly developed and logically organized field such as mathematics, there are issues of content selection and emphasis that teachers cannot easily resolve by themselves and for which current policies do not provide a sufficient answer. To understand more precisely the effect of external policies on teachers, a bottom-up approach is advocated. This approach starts with an analysis of what teachers do and treats external policies as but one of many factors influencing teachers. In one such study, selected teachers from three districts were studied intensively during the course of a year. The districts were chosen for variation in centralization of curriculum policy. Selected findings from this study are presented, including, for example, the response of teachers to a new district textbook, district testing programs, and a district management-by-objectives system. These case studies indicate that external policies, even when weak, do influence teachers' content decisions. In effect, the teachers studied acted as political brokers, arbitrating between their own priorities and the implied priorities of external policies.

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TEACHERS AS POLICY BROKERS IN THE CONTENT OF ELEMENTARY SCHOOL MATHEMATICS[1]

John Schwille, Andrew Porter, Gabriella Belli, Robert Floden, Donald Freeman, Lucy Knappen, Therese Kuhs, and William Schmidt[2]

> No one has ever said to me, "Why aren't you teaching this?" or "Why are you teaching this?" I like the flexibility. I guess if I didn't have that, I would probably be upset. But yet . . . I think it is important that you do have some kind of a guide, with some flexibility within it. I wouldn't mind somebody saying, "Why are you teaching this?" It would make me stop and think, "Why am I?"
>
> Jacqueline, June 18, 1980

Jacqueline[3] is one of seven teachers (grades 3-5 in six schools and three districts) whom we studied throughout the school year 1979-80 to find out exactly what mathematics they covered, why they taught the topics they did, and why they did not teach other topics. Jacqueline, we found, was, with few exceptions, an assiduous follower of the textbook for fourth-grade mathematics.

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[1]This is a revision of a paper prepared for an NIE conference on teaching and educational policy, Washington, D.C., February 26-28, 1981. Preparation of the paper was funded by the Program on Educational Policy and Organization, NIE (contract no. NIE-P-80-0127). However, the opinions expressed do not necessarily reflect the views of that agency.

In revising this paper, the authors received helpful comments and criticism from Marianne Amarel, Katherine Boles, Margret Buchmann, Richard Elmore, Michael Kirst, and Michael Rutter.

[2]John Schwille is a senior researcher with IRT's Content Determinants Project. Andrew Porter is the project coordinator. Also project members, Gabriella Belli is a research intern, Lucy Knappen is a teacher collaborator, and Robert Floden, Donald Freeman, and William Schmidt are senior researchers. Therese Kuhs, formerly a research intern, now teaches at the University of South Carolina.

[3]All teachers' names in this report are pseudonyms.

In Jacqueline's case, our stereotypes might have led us to predict less adherence to the textbook, for she reported having had good mathematics teachers throughout her own schooling and liked to teach mathematics very much. In fact, at one time she had developed her own unit to teach geometry, a topic that many elementary school teachers skip. Even with this experience, Jacqueline generally advocated following the textbook. She said that if she were to pick and choose what she would like to teach in mathematics, she might end up teaching things that would be fun for her and her students, but that might not have immediate value for the students.

As researchers, we wanted to know what part school and district policies played in Jacqueline's decisions to follow the textbook. How did these policies interact with Jacqueline's own beliefs and other possible influences in making the textbook almost her sole source of content? Although the cases we studied may be exceptional--a possibility to be addressed in further research--our studies thus far have led us to reexamine various myths about teachers as well as certain assumptions about educational policies. For example, how much truth is there to the notion that teachers resist outside guidance in curriculum matters? Under what conditions does textbook following reflect commitment, not lack of commitment, to the subject-matter or content of instruction?

Given our interests, we could define content all inclusively as the cognitive, social, psychomotor and affective outcomes of education, but we have limited ourselves, for the purposes of this paper, to the cognitive content of elementary school mathematics. Within that domain we are concerned with different views of what

might be taught in elementary school and the means available to resolve these differences. Our argument cannot be applied indiscriminately to either secondary school mathematics or other subject-matters.

Taking Content for Granted[4]

Bronfenbrenner (1970) has suggested that there has been too much preoccupation in the United States with the teacher as purveyor of subject-matter. Yet if we look at mathematics, a subject critical to many high status occupations, we find that it is treated as less important in elementary school than one might expect. Why, we wonder, is far less time devoted to mathematics than to reading and language arts, and why does lack of competence in mathematics continue to be more socially acceptable than illiteracy?

Paradoxically, while Bronfenbrenner fears a preoccupation with content, researchers and educators have frequently taken content for granted. For example, among the decisions studied by specialists in the politics of education, content decisions do not loom large (Schwille, Porter, & Gant, 1980). Content is less salient in the literature than such matters as collective bargaining, school finance, school desegregation, and changes in enrollment. School finance studies use as measures of output not learning outcomes, but expenditures that give little indication of what is being purchased for this money. In education, the same level of resources can serve many different purposes (e.g., teaching of subject matter, socialization, custodial care). The analysis of content addresses

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[4]We follow the "new" British sociology of education in calling for analysis of what educators take for granted. Similarities and differences between their work and ours are discussed in Schwille, Porter, and Gant (Note 1).

this ambiguity by categorizing the outputs of schooling in a way that reflects what people think about the purposes of schooling and the demands they make upon schools.

For a long time, content (in the sense of acquisition of knowledge) was not of much interest to sociologists either. They were more concerned about the control of students and the learning of values. Spady and Mitchell (Note 2) cite 10 works, including those of such well-known sociologists as Becker, Parsons, Stinchcombe, and Waller in support of the contention that "control of students is at the center of school system concerns." A collection of syllabi for the sociology of education, published in 1978 by a section of the American Sociological Association, gives no emphasis to the cognitive content of instruction (Persell, Hammack, & Thielens, 1978).

Even among educationists, content has often been taken for granted. A dominant school of research on teaching concentrated for years on generic skills of teaching and neglected subject-matter differences (e.g., Rosenshine, 1971). Similarly, among teacher educators and practicing teachers, questions of content have often been eclipsed by questions of instructional strategy or method (cf. Buchmann, Note 3).

As one explanation for this state of affairs, Apple (1978) paraphrases recent comments of Stanwood Cobb, one of the early organizers of the Progressive Education Association: "Many progressive educators throughout the early decades of this century were quite cautious about even raising the question of what actual content should be taught and evaluated in schools. They often preferred to concern themselves primarily with teaching methods, in part because the determination of curriculum was perceived as inherently

a political issue which could split the movement."[5]

Whatever the reason, the taking of content for granted continues. Elmore (1980), for example, appears to subsume the selection of content under problems of choosing an appropriate instructional strategy. He treats poor performance on standardized tests in mathematics and reading as a problem to be resolved by the teacher's choice of strategy (with support from the school system and other authorities). We would ask if the content of these tests is appropriate. Then, in the paragraph quoted below, he assumes that teachers are able and willing to turn utopian content demands into a "well-organized strategy of instruction:"

> Teachers receive a variety of signals about what to do in the classroom. In addition to the signal they receive from the 320(d) program about reading and math skills, they hear about their responsibility for teaching democratic values, discipline, the free enterprise system, health and nutrition, career choice, and the history of western civilization, to mention but a few topics. It is the teachers' responsibility to turn these signals into a well organized strategy of instruction that responds to the range of skills and abilities they find among students in the classroom. (p. 24)

We would ask whether it is justifiable to ask teachers to make the difficult content choices that this example implies.

In the last decade a new school of sociology has developed in Britain to challenge the taking of content for granted. It has popularized the view that beliefs about what knowledge is worth knowing and teaching have reinforced social inequality and posed an obstacle to social justice. Members of this school of thought follow Pierre Bourdieu, a French sociologist who sees schools as helping privileged families pass on their cultural capital and legitimating this inheritance under the guise of meritocracy.

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[5]Apple cautions that Cobb's recent recollection of what happened many years ago may not be accurate.

> Prior acquisition of cultural capital through osmosis in the family environment creates the impression of ease and brilliance in school whereas having to make up ground through methodical effort is seen as laborious striving that indicates lack of ability.
>
> By treating socially conditioned capacities as if they were differences in native ability, the school legitimates ascribed inequalities and masks the differential transmission of cultural heritage. It serves to convince the lower social classes that they owe their destiny to their lack of individual ability and that they have chosen their fate. (Bourdieu's position as summarized in Murphy, 1979)

According to an exponent of the "new" sociology of education, the experience of mathematics is an example in point:

> Pupils have the chance to see that there is a high status group of those who can "do" mathematics and another, often larger group of lower status people who, though they appear to have had the chance to join the high status group, have failed to make it. Differentiation in such circumstances appears to be not only fair but also objective. (Eggleston, 1977)

Our own approach to this issue does not presume that variation in content coverage always reinforces social stratification. Variation in content and its implications are matters for empirical investigation. We are therefore committed to measuring content coverage and to investigating the causes and consequences of teachers' content decisions.

Puzzles of Content Coverage in Elementary School Mathematics

Content coverage in American schools is a bit like a jigsaw puzzle. It is easy to put together a few pieces, based on personal knowledge and experience, but a national scene of content variation, in all its detail, is a challenge to assemble.

For many, to be sure, the content of elementary school mathematics is cut and dried. It is almost entirely computational skills with whole numbers and fractions. This point of view, however, is but

one of several in a history of disagreement over what to teach (NCTM Yearbook, 1970). In the early part of this century there were frequent demands for the *reduction* of time on elementary school mathematics and the *elimination* of topics (Metter, 1934). Guy Wilson (1926) carried out surveys of how adults use mathematics and drew on the results to justify confining the mathematics curriculum to the most commonly used computational skills as follows:

> Ninety percent of adult figuring is covered by the four fundamental processes: addition, subtraction, multiplication, and division [of whole numbers]. Simple fractions, percentage, and interest, if added to the four fundamental processes, will raise the percentage to over ninety-five percent. Mastery of these essentials becomes the drill load in arithmetic for the grades. Beyond that, the work is informational problem work adjusted to child interests (Wilson, Stone, & Dalrymple, 1939; also quoted in NCTM Yearbook, 1970, p. 122).

Although Wilson (1926) proposed to supplement drill with "meaning and understanding," his main concern was with computational skill. He declared that

> the emphasis on one hundred percent accuracy is an important emphasis and should not require explanation.... Letter perfect results are the only results that are wanted in the business world.

A sharply contrasting point of view is represented by a group of university mathematicians and scientists who met in Cambridge, Massachusetts in 1963. They attempted to give direction to the school mathematics reform movement then gaining momentum. This group justified its recommendations through reference to the discipline of mathematics:

> We want to make students familiar with part of the global structure of mathematics. This we hope to accomplish by the "spiral" curriculum which repeatedly returns to each topic, always expanding it and showing more connections with other topics.

> . . . Mathematics is a growing subject and all students should be aware of this fact . . . . The knowledge that there are unsolved problems and that they are gradually being solved puts mathematics in a new light, strips away some of its mystique, and serves to undermine the authoritarianism which has long dominated elementary teaching in the area. (Cambridge Conference Report, 1963, pp. 8-9)

According to recent reports on U.S. schools (NACOME, Note 4; Suydam & Osborne, Note 5), this history of competing points of view has led to consensus on the teaching of whole number computational skills, but considerable variation in the coverage of such peripheral topics as metric measurement, geometry, graphs, statistics, probability, relations, and functions.

In the future, even the core whole-number skills may come under increasing attack. Already, the availability of calculators leads Wheatley (1980) to propose that schools discontinue the teaching of long division with two-digit divisors.

A National Curriculum That Vanishes Upon Examination

To find out whether the consensus in elementary school mathematics justifies speaking of an implicit national curriculum and to provide an outcome measure for the study of teacher decisions about what to teach, we have developed a three-dimensional classification of elementary school mathematics (Kuhs, Schmidt, Porter, Floden, Freeman, & Schwille, Note 6). The three dimensions are (1) general intent (i.e., conceptual understanding, computational skills, applications), (2) nature of the material (e.g., whole numbers, common fractions, decimals), and (3) mathematical operations the student must perform (e.g., multiplication, estimation, ordering).

To date, we have classified five of the standardized tests and three of the textbooks most widely used in U.S. elementary schools

in the fourth grade. Figure 1, a content analysis of the Stanford Achievement Test (SAT), shows how our classification procedures have been used to represent content at different levels of detail. Specific topics are represented by the cells of the classification matrix (e.g., 3 of the 112 SAT items are devoted to skill in multiplying a multiple-digit number by a single digit number). More general topics can be addressed by summing across cells to obtain marginal totals (e.g., 17 items on the SAT deal with multiplication).

Some have claimed that, in elementary school mathematics, there is a national curriculum defined by textbooks and tests. This claim appears to be true, but only at a fairly high level of generality. All the textbooks and tests we analyzed contained material on addition, subtraction, multiplication, division, and geometry. Beyond these general areas of agreement, however, there was little evidence to support the concept of a national curriculum. Outside whole number computation, we found substantial variation even at the marginal level of the classification (e.g., variation of emphasis on fractions, number sentences, estimation, and metric measurement). Still more variation could be seen at the specific or cell level. In the three textbooks, for example, over half the 290 cell-level topics covered (by one or more items in one or more books) were unique to a single book. Only 28% of these topics were covered in all three books.

In examining the consistency between tests and textbooks, we found that only six cell-level topics were emphasized in all three books and five tests (Freeman, Kuhs, Porter, Knappen, Floden, Schmidt, & Schwille, Note 7). The match in content covered was better for some textbook-test pairs than others. However, even for the best

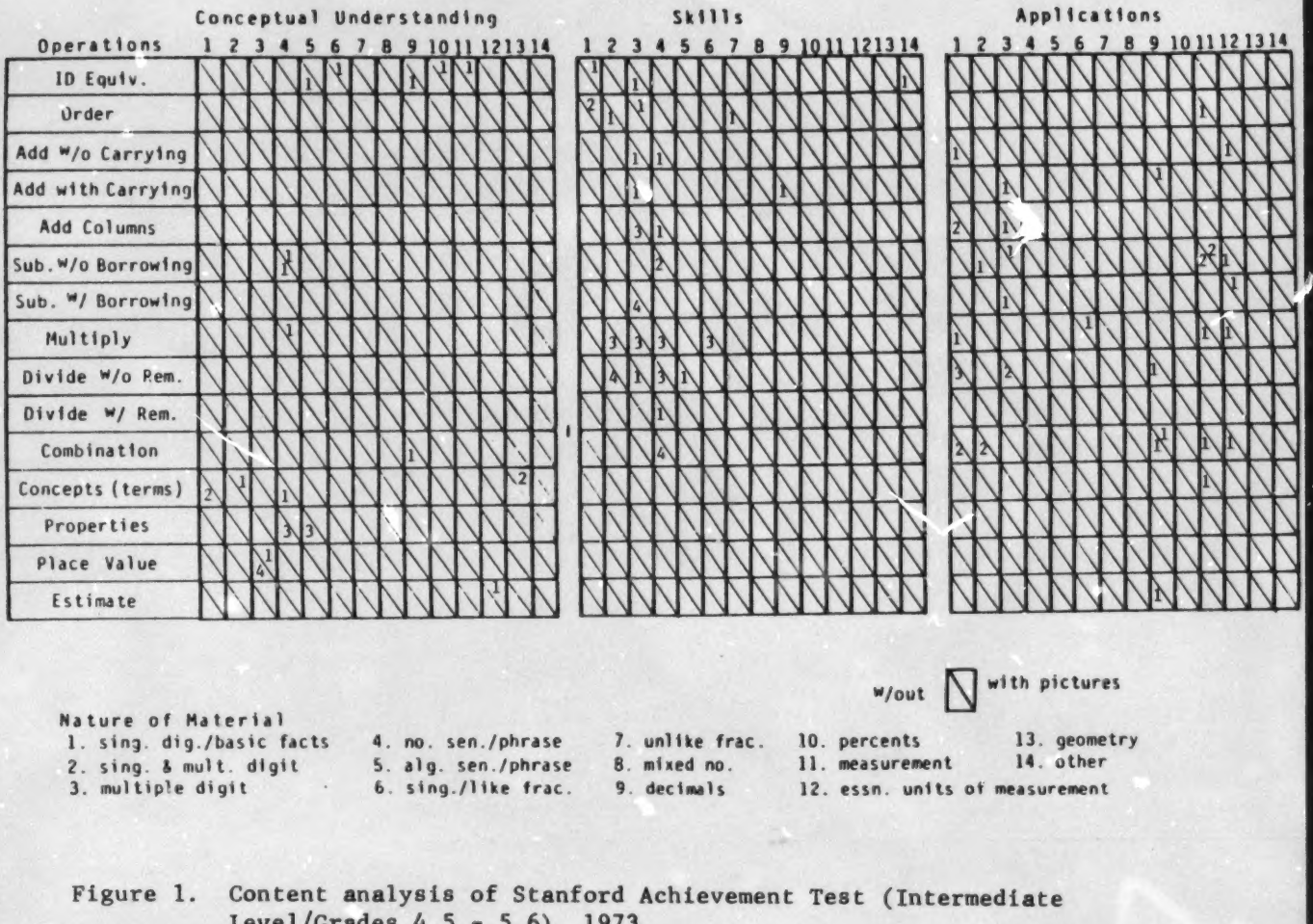

Figure 1. Content analysis of Stanford Achievement Test (Intermediate Level/Grades 4.5 - 5.6), 1973.

matched pair, no more than 50% of the topics on the test were covered by the equivalent of one lesson or more in the textbook.

In another study, we again found core consensus and peripheral variation in mathematics content, this time as described by 19 teachers of grades three to five in a single district (Kuhs, Note 8). When asked to divide all the mathematics they taught into a few categories, all the teachers mentioned the four arithmetic operations of addition, subtraction, multiplication, and division. But other areas (e.g., geometry, measurement, place value) were singled out by only a few teachers. The 19 teachers also interpreted student understanding of mathematics in different ways. Some teachers described understanding as the learning of concepts, others equated understanding with getting correct answers, and still others stressed the ability to use mathematics in given situations.

In our research we are seeking explanations for these differences and similarities. What explains these teacher points of view? Who selects the content that is ultimately taught?

The Resolution of Content Dilemmas: Teacher Policies Versus External Policies

Teachers Make Policy

Teachers often face incompatible demands. They are subject to conflicting pressures from administrators, parents, and interest groups. In mathematics, for example, parents may want more emphasis on long division while mathematics educators want less.

In principle, the policies adopted by boards and legislatures might resolve many of the conflicts and inconsistencies that teachers face. Teachers would have only to implement these policies. But in practice the educational policies of districts, states, and federal governments

are often ambiguous or weak. Even where clear and strong, such policies may promote the interests of particular groups, often for good reasons (e.g., in the case of the handicapped, low-income children, the gifted), yet leave teachers and local administrators to arbitrate among competing interests.

In this semi-autonomous role, teachers are better understood as political brokers than as implementors. They enjoy considerable discretion, being influenced by their own ideas of what schooling ought to be as well as persuaded by external pressures. This view represents a middle ground in the classic sociological contrast between professional autonomy and bureaucratic subordination. It pictures teachers as more or less rational decision-makers who take high-level policies and other pressures into consideration in their calculation of benefits and costs.

We therefore consider two types of policy: *teacher policy* as the definitive allocation of public resources by working-level personnel in education (Schwille, Porter, & Gant, 1980; cf. Lipsky, 1980; and Elmore (1980); *external policy* as policy in the usual sense--the laws, regulations, and other directives of boards, legislatures, and executive departments responsible for whole school systems.

A Framework for Teacher Policies About Content

Teachers ultimately decide what is covered in the classroom. That is, they specify *how much time* will be devoted to a subject, *what topics* will be taught, *to whom* these topics will be taught, *when* and *how long* each topic will be taught, and *how well* topics are to be learned. In principle, it is possible for all these decisions to be made autonomously by the teacher, but in practice

there is usually leverage exercised by external policies (formal or informal) at the school or district level.[6] In addition, teachers are exposed to a variety of external influences which have nothing to do with external policies (e.g., another teacher, parent requests, newspaper articles). To understand teachers' content decisions, one must take into account an array of influences, which encompass the teacher's own beliefs and characteristics of the teacher's students as well as external policies.

Teacher repertoire as a starting point. In the absence of external policies and other pressures, teachers are likely to select topics from their repertoire, that is, the topics they have taught in the past. Within this repertoire, we expect that the more a teacher regards a topic as appropriate for students and one that s/he is ready to teach, the more likely it is to be taught. By *appropriate*, we mean judging not only that students would benefit from the topic, but also that they would learn the topic without undue difficulty and find it interesting. Similarly, the teacher's judgment of *readiness* to teach a topic involves such considerations as how well the teacher understands the topic and how enjoyable it is to teach. We anticipate using these content judgments to predict how a teacher would respond to new topics.

These beliefs about appropriateness and teacher readiness may be influenced by external policies, but the manner and extent of this influence is not well understood. It is commonly thought that external policies do not have much influence on teachers' beliefs about content, presumably because in the short run policies that run contrary to

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[6]For illuminating examples of a high degree of curriculum autonomy among teachers at the high school level, see Cusick (Note 9) and McNeil (Note 10).

teacher beliefs engender considerable resistance (e.g., Oldham, Note 11). If the proposed content is not too esoteric, however, it may cause less resistance than proposed changes in instructional strategy. It is important to remember that instructional strategies are the focus of much of the innovations literature that has led people to expect teacher resistance (e.g., the Rand change agent study as reported in Berman & McLaughlin, 1978). In the long run, we expect that external policies do gradually change teacher beliefs about content as these policies gradually gain more and more acceptance.

Students and their effect on teacher policies. Students, we believe, have a continual, though perhaps small effect on teachers' content decisions. For example, although teachers select instructional materials without being acquainted with the particular students who will be using the materials, teachers can evaluate the materials in terms of both students they have had in the past and students they expect to have in the future. Then, when important decisions about grouping and classroom assignment are made at the beginning of the year, actual student characteristics can inform teacher decisions about who gets what content.

During the course of the year, teachers monitor student responses and may modify content decisions as a result. Lundgren (1972) portrays whole class instruction as a tradeoff between the amount of content covered and the number of students allowed to lag behind. That is, the teacher who speeds up to cover more topics risks increasing the number of students who have insufficient time to learn the content. The Dahllof-Lundgren steering group hypothesis suggests that teachers pick out particular students to pace the class, students at the border-

line between those who are expected to learn the content covered and those who are not.

Students may also actively influence the content of instruction by making suggestions or requests. In our case study of Jacqueline, such requests occasionally came to our attention (e.g., students asking for things they could do for extra credit, students asking to repeat a mathematical game). Jacqueline also changed several students' placement after such a request. She put together one remedial student she was tutoring with two students from another teacher's class because, in part, the first student wanted to be part of a group.

External policies give the teacher more or less leeway to respond to student differences. On the one hand, adoption of a district wide textbook puts little constraint upon teachers. They can delete topics that they consider inappropriate for students. On the other hand, a requirement to track students on a set of district objectives discourages teachers from skipping topics. An external policy that mandates individualized instruction can take much of the control over pacing decisions away from the teacher and give it to students. Such a mandate allows highly motivated students to move ahead quickly, but it also permits unmotivated students to lag behind more than they might with group teaching.

A Parallel Framework for External Policies

External policies that are likely to affect teachers' content decisions can be sorted into categories which, for the most part, parallel the teacher decisions discussed above (how much time, what topics, to whom, etc.).

Mandated or recommended time allocations. According to a national survey sponsored by the National Science Foundation (Weiss, Note 12),

40% of the school districts sampled had guidelines for the minimum number of minutes to be spent per day on fourth-grade mathematics (average 38 minutes recommended or required).

Press for specific topics. Written objectives, textbook adoptions, and testing programs make it possible for schools or districts to influence, intentionally or unintentionally, the choice of topics to be taught. For example, according to Weiss (Note 12), 93% of U.S. school districts use standardized tests in K-6 mathematics. Of these districts, 54% report making moderate or great use of these tests in revising the curriculum, while 30% report small use and 10% no use (6% no response).

Press for differentiating content among students. Grouping policies (including assignments to classrooms), pull-out programs with either a compensatory or gifted focus, and district adoption of individualized systems of instruction can affect the extent to which students of the same age are taught different content.

Press for standards. Tests required for graduation, tests for mastery of objectives, policies on retention in grade, and mandated remediation all set standards for student learning and thereby foster persistent coverage of certain topics.

Giving Weight to External Policies

In addition to the four categories just listed, external policies have other attributes that may have an effect on content coverage. For example, some content-relevant policies reflect an intent to prescribe content, some do not. A district textbook adoption may or may not be intended as a prescription for content. Some teachers, especially those who are aware of a prescriptive intent, may perceive the text as a weak press for specific topics. Others may see the mandated text

as nothing more than a pool of topics that they draw upon to fit their own repertoire or the content others (e.g., upper grade teachers, parents) want them to teach. In contrast, a test to certify high school graduation can be expected to have a stronger, more uniform effect inasmuch as there is a prescriptive intent to identify which topics (at a minimum) must be taught to whom (all students), when (at least by graduation), and to what standard (cut-off level on test).

The consistency of pressures on any given teacher is also important. In schools with heterogeneous clientele, ambiguities and inconsistencies in content messages are likely to be common (Lortie, 1969). To the extent that pressures are consistent, their impact will be enhanced (Floden, Porter, Schmidt, Freeman, & Schwille, 1981). Where consistency is lacking, teacher autonomy may be increased.

Still another means of giving an external policy more weight is to see that it has one or more of the following attributes of authority: the invoking of law or law-like rules, legitimation by a body of teachers, endorsement by experts or charismatic individuals, and consistency with social norms (e.g., belief that a topic should always be taught at a certain grade level). Likewise, the power of a policy can be increased through use of rewards and sanctions.[7] One particular category of rewards that the Rand change agent study has shown to be important is support to teachers for implementation of a policy (Berman & McLaughlin, 1978). For content-relevant policies such support might include teacher training on unfamiliar subject-matter, provision of para-professional aides, and automated record keeping.

Presumably, comprehensive external content policies could be

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[7]These definitions of power and authority are adapted from the Spady-Mitchell revision of Weber's classic formulation (Spady & Mitchell, 1979).

given great weight if all the above attributes were present and taken into account by teachers. Policies of this nature probably do not exist in the United States. Closer approximations can be found in other countries (e.g., France) where hierarchical control of content is accepted and teacher autonomy is, for the most part, limited to instructional strategy.

Top-Down Versus Bottom-Up Studies of Content Policies

Implementation, a word made fashionable by policy analysts (e.g., Mazmanian & Sabatier, 1980), can be misleading if it leads people to look at external policies solely in the way suggested by Edwards and Sharkansky (1978):

> Top officials must take several steps to assure proper implementation. They must issue policy directives that are clear and consistent; hire adequate staff and provide them with the information and authority necessary to carry out their orders; offer incentives for staff to execute policy as decision-makers intended and effectively follow up on the implemental actions of subordinates. (p. 321)

A study of implementation relying on these notions would start with policy directives, derive intended outputs from these directives, and then assess the extent to which the directives are carried out and the intended outputs realized.

The difficulties with this top-down approach, especially when applied to education, are now widely discussed in the literature. A top-down approach emphasizes hierarchical control, but hierarchical control plays a limited role in the loosely coupled world of schools (Bidwell, 1965; Weick, 1976; March, 1978). Teachers and building administrators have enough discretion to be able to adapt external policies to their own priorities as well as to pressures from their

clients (Lipsky, 1980). Weatherley's (1979) study of the Massachusetts mandatory special education law illustrates both the impact and the limits of hierarchical control. This law and its regulations, strictly interpreted, required the immediate evaluation of many more children than could be handled. The lack of priorities in the law forced administrators and teachers to set their own priorities, to develop unofficial rationing techniques, and to use their own criteria for weighing the costs and benefits of making a referral.

Teachers may not even have views of schooling that are compatible with the views implicit in external policies. For example, Darling-Hammond and Wise (1981) discuss views of teaching that are opposed to the "rationalistic" views of teaching assumed by external policy-makers. The rationalistic view, as they define it, assumes that schools can be assigned clear-cut goals and that teacher activities can be prescribed, evaluated, and ultimately controlled in terms of those goals. Such a view is still very much a part of top-down studies of implementation even when many variables that interfere with implementation are taken into account (Mazmanian & Sabatier, 1980).

The top-down approach is particularly problematic for the study of content decisions. In this case, even external policies are not especially "rationalistic," at least in the United States where there is a reluctance to be clearly and specifically prescriptive about what teachers teach. For example, in developing curricula for natural and social science, the National Science Foundation was criticized for infringing on local autonomy and in 1976 was forced by Congress to stop funding implementation of its projects (Nelkin, 1978; Welch, 1979).

As a result of this ambivalence at district, state, and national levels, existing external policies are often unclear or weak as far as

as content is concerned. Nevertheless, such policies can still have an effect on teachers' content decisions, an effect which may or may not reflect the policymaker's intent. To understand this effect, the bottom-up approach exemplified by our case studies of seven teachers is useful. This approach starts with an analysis of what happens in classrooms and works back to see to what extent these happenings are influenced by external policies, together with other factors. Such an analysis will turn up anticipated and unanticipated effects of hierarchical pressures, longstanding ways of doing things that are not subject to scrutiny by higher authority, and various nonhierarchical influences (e.g., student pressures, pressures attributable to school norms, and the teacher's own views of what is desirable and feasible).

Illustrations from Studies of Teachers' Content Decision-Making

Teacher Policies, Given Six Simulated Pressures

In one of our earlier studies (Floden et al., 1981), 66 teachers from five areas in Michigan indicated how they would respond to various combinations of pressures to change the content of fourth-grade mathematics. The six pressures came from parents, upper-grade teachers, the school principal, district instructional objectives, textbooks supplied to the teacher, and standardized test results reported in the local newspaper.

The following example of these hypothetical situations is a mix of pressures from objectives, tests, and other teachers:

> In Wakita the central administration has published, for fourth-grade mathematics, a set of objectives which all teachers have been directed to follow. At the end of the

year, a standardized test in mathematics is administered in each grade. The test results for each school are published, by grade level, in the local newspaper.

Shortly after your arrival, you study the set of objectives and the test which is used. You realize that these materials do not deal with five topics you have been accustomed to teaching in fourth grade. You also note that they do include material on five topics you have never taught to fourth graders.

Also imagine that the teachers in your school express a particular interest in mathematics at staff meetings and in conversations in the teachers' room. During these discussions you find that the fifth and sixth grade teachers feel you should teach five topics you have not taught to fourth graders in the past. They also question the value for fourth graders of five topics you have been used to teaching. The topics mentioned in each case are the same as those you noted in your examination of the test and the objectives.

In all hypothetical situations, the pressures were limited to content decisions about specific topics. While the pressures were always consistent, they were not always clearly prescriptive in intent, nor was there much attempt to give them authority. No explicit reference was made to rewards for compliance or sanctions for noncompliance. In particular, no help was promised for putting into practice the changes in instruction that would be required. In short, when the hypothetical situations referred to external policies, these policies were not given much weight.

Nevertheless, the most striking aspect of the teachers' responses to the pressures was their reported willingness to add topics to their instructional content, whatever the source of pressure for change. In other words, teachers presented themselves more as potential implementors than as autonomous decision-makers. The teachers seemed less willing to give up topics currently taught and did not seem to consider the new topics as necessarily supplanting the old

ones.[8]

Objectives and published test results stood out as the most powerful pressures to affect teacher content decisions. Textbooks were the least powerful pressure for adding content, but ranked about the same as other pressures in decisions to omit content.

Our Design for Seven Bottom-Up Studies

In our case studies of seven teachers, the outcome of primary interest was the mathematics covered in each of the classrooms, as recorded in daily logs kept by each teacher. In weekly interviews, we discussed the logs; the use of textbooks, tests, objectives, or other materials; and any conversations or newly received documents relating to mathematics. In addition, we interviewed each teacher at the beginning of the year to ascertain his/her intentions and priorities and at the end of the year to probe his/her reaction to possible curriculum influences.- A limited amount of classroom observation was also scheduled. Independent information on content-relevant policies and other attempts to influence content were obtained through interviews with principals and other district personnel as well as through observation of meetings (e.g., building staff meetings, in-service workshops to explain test scores, and open houses for parents).

The six schools and three districts in which these teachers taught were selected for differences in (a) external policies for the control of mathematics content (centralized vs. decentralized), (b) town type (urban vs. small), and (c) extent of teacher isolation within schools (e.g., self-contained classrooms vs. open schools). The most cen-

[8]The same sort of accretion without deletion has been documented in a content analysis of geometry in German mathematics textbooks (Damerow, Note 13).

tralized district (which we call Knoxport) was an urban district with a management by objectives system, district-wide standardized testing, and guidelines for time spent on mathematics (45 minutes per day in fourth grade). Finn, the least centralized district, was a small-town district with a strict policy of building autonomy in curriculum matters. The only breach in this autonomy was district-wide standardized testing, initiated one year before our study began. Sawyer, the third district, was also a small town district but with somewhat less building autonomy. Following appointment of the district's first curriculum director one year before our study, a district-wide mathematics textbook was adopted and a district-wide standardized testing program initiated.

To get some sense for variation in content decision-making within the districts, two schools were selected in each district. The two schools varied in the extent to which the classrooms were self-contained. Elizabeth Cohen (Note 14) suggested to us that susceptibility to external pressures would be partially determined by the nature of collegial relationships within each school (assessed at the point of selection by the use vs. non-use of teaming, resource teachers, instructional aides, and open-space building).

Two Teacher Policies in the Aftermath of a District Textbook Adoption

Our case studies have a good deal to say about whether and why the seven teachers followed their textbooks. For illustration, we can take two Sawyer teachers, Jacqueline and Wilma, and their response to the district textbook adoption. The district began to use a new mathematics textbook series in all its elementary schools the year of our study. This series was chosen a year earlier by a committee of teachers together with the curriculum director.

During the study Jacqueline attended meetings of the district mathematics curriculum committee, at which members discussed three possible sources of guidance for what to teach: a district scope-and-sequence chart adopted in a previous year, the new textbook series, and the Michigan Assessment tests. After much discussion the committee decided in favor of the textbook as the primary authority and abolished the scope-and-sequence chart, but it never resolved the question of how much of the textbook teachers should cover. In fact, at the very last meeting of the year, one of Jacqueline's colleagues again asked whether the committee was going to decide what was important in the textbook. She declared that the teachers did not all know what they were supposed to be teaching.

The Sawyer textbook policy should be viewed as a weak policy for influencing teacher content decisions. According to Jacqueline, her principal, and the district curriculum director, it was recommended that teachers follow the textbook. But none of these respondents recalled specific examples of this recommendation being communicated to teachers. Rewards for following and sanctions for not following the textbook were little in evidence. One of the two principals we studied did use rewards and sanctions to influence the curriculum, but in the year of our study he concentrated on reading, not mathematics. For most teachers, including the two we studied, in-service assistance on the new textbook was very limited, in part, because teachers did not express much need for this assistance. Hence, it is not surprising to find that the two teachers in our study relied principally on their own judgment in deciding how much to use the textbook.

Determinants of Jacqueline's use of textbook. For most of the year Jacqueline taught two groups in mathematics. With only minor

deviations, she led one group consecutively through 9 of the 13 chapters in the fourth-grade mathematics text. This group Jacqueline perceived as high-ability (relative both to another group taught by her team and to a group she had taught the year before). When Jacqueline spoke of the changes in content she made between the year of our study and the year before, she attributed these changes more to differences in students than to differences in textbooks.

We also studied Jacqueline's work with a remedial group of three students who were using the third-grade textbook. Here again Jacqueline followed the text closely, though not as closely as with the higher group. In so doing, she taught content that other teachers might well have skipped in a remedial group (e.g., writing number sentences for word problems, rounding to nearest ten and nearest hundred, using estimation in word problems).

Our interviews throughout the year dealt frequently with Jacqueline's reasons for following these textbooks so closely.[9] These reasons, which we describe below, suggest that any new textbook is likely to have a considerable initial effect on the content that Jacqueline covers. Her reasons also indicate, however, that in subsequent years she may use the textbook less.

Jacqueline saw important benefits for students in following the textbook. She held that the text ensures continuity in subject-matter. Teachers who follow the textbook do not skip important topics; they do not teach topics out of appropriate sequence. According to Jacqueline, teachers who did not like the old text-book did pick and choose. They left out important chapters (e.g.,

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[9]However, to avoid influencing the teachers unduly, we were careful about how we probed into such issues before the end of the year since content decisions were still being made.

number theory). In contrast, Jacqueline maintained that other teachers in her school and district liked the new textbook. She therefore predicted that they would follow it more closely than they had the old book, thereby increasing continuity across grades.

Following the textbook was seen not only as beneficial to the students, it also benefitted the teacher by saving planning time. Time was important to Jacqueline, a very busy member of a team of four teachers. The team held planning meetings, but they were devoted in large part to science and social studies, the two subjects that were taught in tightest coordination among the four teachers. Outside these meetings, Jacqueline was a demanding teacher who spent much time working with students. She was also an active participant in the local teacher organization and in university courses.

In spite of these advantages of following the textbook, Jacqueline's commitment to the new book was provisional. During a district curriculum committee meeting, Jacqueline told the committee that after using a textbook for the first time, a teacher may find parts inappropriate. For herself, Jacqueline told us in an interview, she would not want to judge a textbook without a trial.

In September and October Jacqueline showed how seriously she was going to consider what the book had to offer. She reported paying careful attention to terms that were given more importance in the new book than in books she had used previously (e.g., equation, inequality, and open sentence). Later Jacqueline did object to parts of the text and even deviated to some extent. Most of these objections were not so much a matter of content as of strategy, that is, the method of teaching a topic. On rare occasions she did skip some peripheral content (e.g., use of flow charts). At times she

also supplemented the text to put more emphasis on conceptual understanding.

Her criticisms were usually based on the observed or inferred response of students. For example, the text did not break the various multiplication facts into separate lessons as much as she had in the past. Although this lack of separation posed no problem for her current high-ability class, she repeatedly criticized this part of the text as unsuitable for students of lower ability. She was also seen advising a student teacher, who worked with a lower ability group, to combine two chapters in order to break up the facts.

Likewise, Jacqueline did not consider skipping geometry with her high-ability group. But, although she was distressed that teachers might skip geometry without good reason, she did consider geometry expendable for any class that was well below average in achievement.

Jacqueline's evaluation of textbooks ultimately leads to varying degrees of use. In science, she conjectured that if a new textbook did not compare favorably with units already developed by her team, the team would probably continue to use their own units. Jacqueline also reported that she did not use the district textbook in language arts. She and other teachers regarded this textbook as deficient in both content and strategy.

In short, Jacqueline considers many factors in her decisions of how much to follow the text: benefits of continuity to students, the opinions of other teachers, the characteristics of the text once she has tried it, and the time she has available. In the year of our study, these considerations led the district textbook to figure very prominently in Jacqueline's content decisions. However, this effect of the district adoption was so bound up in Jacqueline's personal

policy that other teachers might respond to the same external policy in very different ways.

Determinants of Wilma's use of textbook. During our study Wilma taught fourth grade in the same district as Jacqueline, but in another building. Her conception of what was basic and what was peripheral to fourth-grade mathematics was neatly packaged in what she termed a "subject clock." The subject clock was limited to basic content: addition, subtraction, multiplication, division, and fractions. She considered topics such as geometry, measurement, and estimation "frills." Wilma strongly believed that the five subject-clock topics should help children deal with real life activities, such as collecting a pay check, purchasing things in a store, and determining what an item costs when it has been marked off a certain percent.

Wilma also had a personal view of learning that she called her "internal clock." According to this point of view, there are optimal periods during the year for learning new content, periods that are least disrupted by long breaks or by children's anticipation of some upcoming event. Wilma asserted that the greatest learning occurs in the period from January to spring break. Before January, the year is increasingly disrupted by Christmas. After spring break the students' thoughts turn more and more to summer, play, and getting outside.

Hence, according to Wilma, September through mid-November should be chiefly devoted to review of addition and subtraction. From mid-November through January the main topic to be covered is multiplication, and then from February to Easter students should concentrate on division. After Easter the important topic is fractions. Once fractions have been adequately taught, peripheral topics can be

included in whatever time remains.

Wilma's conception was carried out in practice. In almost all cases, actual instruction on topics began no more than a week later than predicted earlier in the year.

Since all widely used fourth-grade textbooks cover the five topics in Wilma's subject clock, she could make extensive use of any textbook. However, if a textbook were to follow the suggestion to delete the teaching of long division with two-digit divisors (see, e.g., Wheatley, 1980), we would predict that Wilma would follow her clock rather than the text. In several conversations, Wilma indicated that if the approach suggested by the textbook were not consistent with her thinking, she would ignore it. In fact, Wilma omitted the geometry chapter, saying that it was not part of her subject clock. Unlike Jacqueline, Wilma did not follow the pages or sections of the new textbook in the order given. She rearranged the sequence to fit her internal clock. Even within topics, such as addition, she did not follow the textbook sequence.

Wilma was ready to consider topics in the textbook that she had not taught previously, but that fit her subject clock. For example, the new textbook included averaging, which Wilma had not taught before. She taught this topic because it fit well under division, one of her core topics. She admitted that in earlier years, she had never thought about teaching averages.

In short, unlike Jacqueline, Wilma was from the beginning convinced that following her own repertoire and priorities was better than sticking closely to the text. Both teachers ultimately decided how they would use the district-adopted text. But Wilma's strong commitment to her repertoire resulted in a continuation of earlier

practices whereas Jacqueline was more willing to give the text a try to see what advantages it offered.

A Teacher Policy in the Context of State and District Testing Programs

In the Finn district, where buildings have enjoyed almost complete curriculum autonomy, the use of standardized tests was one possible exception to this lack of external control. In the fall of our study, the Michigan Assessment (MEAP) was administered to all fourth graders, here as elsewhere in the state. In addition, a widely-used standardized test--let us call it the WUST--was given in each grade. This external policy for the use of the WUST was adopted by the district one year before our study on the initiative of the curriculum director, who had been impressed with the test while taking a course from an author of the WUST. However, in conformity with the district philosophy of building autonomy, the policy was not initiated until key building principals had also attended this course and been similarly convinced.

The curriculum director viewed the WUST as the district prescription for what to teach. However, as far as we could tell, there were no rewards or sanctions to be given teachers for performance on this test. Nor was the content message of the WUST entirely consistent with the message communicated by the MEAP, the state mandated test.

Donna, one of the teachers we studied in Finn, paid little attention to the MEAP results. The scores in her school were so high that there was little indication of topics needing attention. Donna also considered the reporting format uninformative. Her principal likewise expressed a preference for the WUST:

> For this particular school in mathematics...[the MEAP] goals are worthless because our students function at a much higher rate than what they want as minimal objectives....It is utterly ridiculous, 93 to 97% attainment ...[and] doesn't tell me my real needs for this building as far as individual kids are concerned.

In contrast, the WUST results were carefuliy reviewed in a meeting of school principals, which was followed by staff meetings in each building. Before the meeting in Donna's school, the principal circled all items on the WUST where the proportion of correct answers was not as high as district or national norms. But at the meeting he deferred to the teachers as authorities, asking them to determine whether the topic covered by each of these items represented something they should be teaching.

Teachers did this exercise in small groups. In Donna's group, topics such as "place value" and "measurements arranged from small to large" were cited as strengths; "using the symbols for greater than, less than, or equal," "two-part story problems," "using the symbol ÷ for division," and "roman numerals" were identified as weaknesses.

As far as we could ascertain from our close monitoring throughout the year, Donna did not increase her emphasis on any of these areas of relatively low student achievement. When asked if the staff meeting on WUST results had been valuable, Donna made no reference to the analysis of strengths and weaknesses. Instead she suggested that the discussion was helpful in communicating what the other teachers were doing in grades one to five.

Although the specific feedback from the WUST did not appear to affect Donna's teaching, she and other teachers in her school repeatedly expressed concern for why the WUST scores in reading were so much higher than in mathematics. According to Donna,

the other teachers attributed the lower scores in mathematics to earlier use of an individualized program. Donna disagreed, believing that this difference was the result of (a) the fact that the teachers had placed so much emphasis on reading in recent years, (b) the use of different textbooks in mathematics in different grades, and (c) the lack of communication across grades. In Donna's words, teachers should "know exactly what [other teachers] have covered and are covering." Thus, the effect of the WUST was not to cause Donna to give more emphasis to specific topics, but rather to raise teacher concern for overall mathematics performance and to give Donna an occasion for discussing the lack of articulation across grades.

A Teacher Policy Within a District Management-by-Objectives System

In Knoxport, a district with more than 30,000 students, all teachers in grades one through six were required to follow a management-by-objectives (MBO) system. In mathematics, the system included over 100 objectives, which were to be mastered in a prescribed order. The objectives were narrow in definition and focused on computational skills. For example, there was one objective for two-digit by two-digit multiplication and another for two-digit by three-digit. There was a district goal that each student master at least 16 objectives each year, and district level records of student progress were kept on all compensatory education students. However, we found no evidence of sanctions for not reaching 16 objectives.

To facilitate use of the MBO system, there were tests for student placement at the beginning of the year, mastery tests for each

objective, review tests for subsets of objectives, end of year tests for grades four through six, and forms for recording student achievement. In addition and of key importance were the assignment sheets, which tied each objective to relevant pages from each of several textbooks in use within the district.

The MBO system began to take shape eight years before our study. At the beginning it was a pilot project to evaluate federal and state compensatory education programs. It was formally adopted and required of all teachers three years later. The number of objectives achieved by students in the MBO system continued to serve as the basis for evaluating nearly all categorical programs in the Knoxport district. By virtue of the MBO system and without direct intent to prescribe content, federal and state categorical programs have had an important effect on choice of mathematics content in this district.

At the time of adoption, the MBO system was strongly opposed by many teachers despite its having been created by a committee with substantial teacher representation. However, Andy (our case study teacher) started using the system before it was mandated by the district. He was the first in his building to do so, and one of the first in the district although he had no involvement in the development or revision of the system. When he began using the system, he was a member of the district mathematics committee. Dissatisfied with his approach to mathematics at the time, he accepted the district mathematics specialist's request to give the system a try. In general, our evidence suggests that this specialist had a major influence on the mathematics Andy taught.

Later, Andy tried to persuade other teachers to use the system.

His recollection is that eight or so teachers in his building were using the system by the time it was mandated by the district. Even so, according to Andy, it was never followed closely by all teachers, even at his school.

Andy himself allowed almost no exceptions to the system. Only two students in his class were allowed to skip any objectives during our study. When asked if he would like to see any changes in the content of the objectives, Andy responded, "No additions, no deletions, [only] the reordering of [objective] numbers 57 and 58."

Given Andy's policy, delivery of content was almost entirely in the hands of the materials, not the teacher. In contrast, another teacher we studied in the same district gave two periods of mathematics for her students, one for working individually on the MBO system and one for whole group instruction on a textbook. We were also aware of teachers who made little use of the system.

In short, Andy was a voluntary implementor who used the MBO system in much the way it was designed. Nevertheless, his own decisions partially determined the content covered by students in his classroom. For example, he decided not to let students do as many objectives as they could without interruption. Instead, once they had progressed to a point in the objectives that he had selected, they were given enrichment assignments in the fourth-grade textbook. Andy reorganized this textbook material and had all enrichment students proceed through in fixed order. Students who completed this textbook enrichment were returned to the objectives. In addition, the quickest to finish the complete textbook were given a unit on metric measurement.

Andy chose assignments from the assignment sheets that tied textbooks to objectives. He rarely used knowledge of students in making these assignments. As far as we could tell, the primary consideration was whether the old or new textbook was on the shelf at the moment the assignment was made.

Still other teacher decisions influenced the pace at which students completed steps in the system. The system itself provided no advice on when a student should be permitted to take the mastery test. At the beginning of the year, Andy let students decide when they were ready. Dissatisfied with this aspect of his policy, Andy later tried other procedures (limiting testing to certain days, making the decision himself, setting goal dates for mastery). But when none of these procedures resulted in a better tradeoff between pace and content learned, they were progressively abandoned.

District policies had a major impact on the mathematics content Andy covered in his class. In scheduling mathematics, Andy was influenced by the district guidelines that advised 45 minutes per day for mathematics. Within this period he operated according to a district MBO system that specified what topics were to be taught (at a minimum), in what order, and to what level. However, factors other than district policy were also important in shaping the content covered in Andy's classroom. For example, the enrichment instruction received by most of the students in the class was outside the control of the system. Also, the prescribed use of mastery tests left room for Andy to experiment with the pace of instruction. Finally, it is important to note that Andy was no passive implementor, but rather a volunteer, a booster, and a broker for the system.

Missing Pieces

The history of elementary school mathematics in the United States, together with our content analyses of present day instructional materials, indicate that even in this traditional subject there are important differences of opinion about what should be taught and tested. These differences surface from time to time in public debate, but they are rarely resolved in a way that provides clear guidance to teachers. Teachers are expected to deal with differences that makers of external policy are unable to resolve.

Despite the lack of strong external policies, our initial studies suggest that external policies do influence teachers' content decisions. The 66 Michigan teachers in our simulation study hypothetically abdicated their role of autonomous decision-maker, even when confronted with what we would judge as weak attempts to influence them. In each of the three districts covered by our case studies, external policies had some influence over the teachers' content deliberations. But the seven teachers also exercised much discretion, particularly since the external policies were neither comprehensive nor strong. In other words, teachers did operate as political brokers, arbitrating between their own priorities and the implied priorities of external policies. Should we continue to find that external policies have an important (though not necessarily decisive) influence on teachers' content decisions, we would conclude that the makers of external policies ought to face more squarely than in the past the difficult questions of what should be taught and who should decide.

If schooling were confined to a single year, it could be considered reasonable to rely completely on professional judgment as

embodied in autonomous teacher policies. However, as students advance from year to year, from class to class, they are under the control of first one teacher and then another. Hence, even if each teacher policy is in itself judged appropriate, there is no assurance that teacher policies within a school, district, or state are complementary and consistent, one with another. The more we rely on autonomous teacher policies, the more we may have unnecessary redundancy and gaps in the content that students experience in going from one grade to another. Some teachers, such as Jacqueline and Donna, may be sensitive to this problem; others may not be. Unfortunately, educational research has done little to highlight this problem since studies rarely follow students through more than one year of schooling.

In our judgment, teachers can be persuaded to change content more readily than one might think in the wake of federal curriculum development that did not live up to expectations (Welch, 1979). We recognize that teachers have resisted and no doubt will continue to resist proposals for content that they have not been given the opportunity to learn thoroughly themselves or that they find too difficult to teach. But virtually all teachers do teach difficult content (e.g., long division) and many teach peripheral content that was once unfamiliar in elementary school (e.g., geometry, metric measurement, inequalities). As a result of our own research and literature review, we believe that a large proportion of teachers would readily make changes in the content of their instruction when such changes are consistent with their repertoire. Our conceptual framework leads us to predict that a great many teachers would even make changes that are inconsistent with their repertoire if they perceive these

changes coming from persons with legal and expert authority and if they receive ample training and other help in making these changes. In short, the "new" mathematics reform, in our opinion, fell short not because of irreducible teacher resistance, but rather because of inadequate external policies in general and inadequate support for teaching in particular.

It is not our purpose to advocate a highly centralized policy for control of mathematics content in elementary schools, though it is possible to make plausible arguments (for or against control) that might be illuminated by further research. One could say that centralized control, such as exists in many countries, promotes continuity from grade to grade and from school to school. It therefore guards against students missing content that could be important to their future (e.g., fundamentals of mathematics). But it could also be pointed out that such a policy has its dangers as well. For example, it might fail to inspire interest on the part of teachers or students, thereby decreasing the motivation for learning that many regard as a highly important outcome of schooling. Moreover, if control were implemented through detailed objectives, a single series of syllabi or textbooks, or standardized tests such as currently exist, then this policy might give students a view of knowledge that is dogmatic, static, and overly atomistic.

However well founded these particular points, they illustrate the importance of understanding content policies and their consequences. Weak policies as well as strong policies can have undesirable and unanticipated effects. Neither can be taken for granted as the best way to address our country's deep-seated differences and ambivalence about what to teach.

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